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EXAMINER
ISOM, JOHN W

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>24 August 2009</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-10</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-10</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
        application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail. Date _____

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   In the amendment received 08/24/2009 (the "amendment"), Applicant has

amended claims 1-10.

        Claims 1-10 are pending.

Response to Arguments

2.   Applicant's arguments in the amendment, with respect to the rejection of claims

7-10 under 35 U.S.C. 101, have been fully considered but they are not persuasive.

        In the amendment, Applicant argues that claims 7-10 are statutory because

"[c]laims 7-10 represent an apparatus" (page 8, next to last ¶).

        In response, the examiner respectfully traverses, and offers the following

evidence and argument in support of the traversal:

        Claims 7-10 are not statutory because the structure of the claimed invention can

be achieved in software *per se*. This conclusion is supported as follows.

        Data structures not claimed as embodied in computer-readable media are

descriptive material *per se* and are not statutory because they are not capable of

causing functional change in the computer. See, e.g., *In re Warmerdam*, 33 F.3d 1354,

1361, 31 USPQ2d 1754, 1760 (Fed. Cir. 1994) (claim to a data structure per se held

nonstatutory); MPEP 2106.01 (I). In the instant application, claim 7 comprises "a means

of bi-directional communication with said communication network; a means of receiving

all messages sent over the communication network . . .", and "a means for determining

a characteristic value of the communication network . . . and for calculating a third

address value . . . and for assigning the third address value to the device . . .". Among

these limitations, each of "a means of bi-directional communication with said

communication network" and "a means of receiving all messages sent over the

communication network", can be achieved in, for example, networking software *per se*.

With regard to the "means for" limitation, Applicant's specification discloses that "The IP

address generation means is typically a program written in the memory 6, but it can also

be produced in the form of custom integrated circuits (ASIC or DSP for example). In

program form, the means for calculating an address is produced in the form of a module

which is preferably stored in the ROM memory of the device. This module can also be

downloaded from a medium (diskette or CD-ROM), or even transmitted to the device via

a transmission network" (page 7, lines 1-7). This disclosure allows "a means for

determining . . . and for calculating . . . and for assigning", also to be achieved in

software *per se*.

      Based on the foregoing arguments, the examiner concludes that the structure of

the claimed invention can be achieved in software *per se*. Therefore, the claims are not

statutory. Accordingly, the instant rejection is continued, *infra*.

      The examiner suggests that a way to respond to the instant rejection may be to

amend the claims to recite a "non-transitory computer-readable medium" or "memory".

3.   Applicant's arguments in the amendment, with respect to the rejection of claim(s)

1-3 and 5-9 under 35 U.S.C. 102(b) as being anticipated by Cole et al. (US Pat. No.

5854901) (or "Cole"), have been considered but are moot in view of the new ground(s)

of rejection.

Claim Objections

4.   Claims 1, 2, 9 and 10 are objected to because of the following informalities:

- In the 9th line of claim 1, please amend as follows: "said <u>characteristic</u> value".

- In the 1st line of claim 2, please amend as follows: "[[the]] <u>The</u> procedure".

- In the 5th line of claim 9, please amend as follows: "calculation[[,]]; <u>and</u>".

- In the 2nd line of claim 10, please amend as follows: "<u>further</u> comprising<u>:</u>

  a means".

Appropriate correction is required.

Claim Rejections - 35 USC § 101

5.   35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
conditions and requirements of this title.

6.   Claims 7-10 are rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter.

        The claims lack the necessary physical articles or objects to constitute a machine

or a manufacture within the meaning of 35 U.S.C. 101; they are not a series of steps or

acts to be a process; and they are not a combination of chemical compounds to be a

composition of matter. As such, they fail to fall within a statutory category. They are, at

best, functional descriptive material *per se*.

Claim Rejections - 35 USC § 103

7.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

8.   Claims **1-3 and 5-9** are rejected under 35 U.S.C. 103(a) as being unpatentable

over **Cole et al.** (US Pat. No. 5854901) (or "Cole") in view of **Siamwalla et al.**

("Discovering Internet Topology", IEEE INFOCOM '99).

With regard to claim **1**, Cole teaches: A procedure for generating an address

value for a communication terminal (24 in Figure 1) linked to a network (20), the

procedure comprising the following steps, at terminal level:

a) scanning of messages sent over the network (column 3, lines 31-43);

b) receiving of a message interchanged between two communication terminals

already configured (i.e., a DNS request is unicast by a host 14 to a DNS server; column

3, lines 31-43) comprising a pair of first and second address values (i.e., an IP packet

header includes a broadcast DNS server address 40 and an IP source address 36;

column 3, lines 21-30);

c) determining a characteristic value of the network (i.e., where a source address

is "198.1.1.10", the fact that a proposed IP address is "198.1.1.9", implies determination

of "198.1.1" as a characteristic value of the network; column 5, lines 42-56).

Cole does not teach, but Siamwalla does teach: c) determining a characteristic value of the network, said value being the NOT exclusive OR between the first and the second address values (i.e., a NOT XOR operation is performed on network address values, in order to determine a subnet mask quickly; page 6 last ¶ – page 7 ¶ 2, esp. step 3k in algorithm). Based on Cole in view of Siamwalla, it would have been obvious to a person having ordinary skill in the art at the time the Applicant's invention was made, to combine the teaching of Siamwalla with the claimed subject matter as taught by Cole, in order to determine a subnet mask quickly.

Cole further teaches:

d) calculating of a third address value containing the characteristic value of the network (i.e., an address generator 46 generates a proposed IP address "SEED - 1=>198.1.1.9"; column 5, lines 42-56); and

e) assigning of the third address value to the communication terminal if the third address value is not already assigned to another communication terminal (i.e., if no device responds to an ARP request, the proposed IP address is assigned to the router in step 74; Figure 4; column 5, lines 26-32; column 3, lines 55-64).

With regard to claim **2**, Cole in view of Siamwalla teaches: the procedure for generating an address value as claimed in claim 1 (see discussion above). Cole further teaches: wherein if the communication terminal determines from the call captured on the communication network that the second address value is available (i.e., if the source address is considered to be the second address, then the terminal does not deduce that

the second address is available), then the calculating step comprises assigning the

second address value as the third address value (i.e., because the terminal does not

deduce that the second address is available, the source address is not given to the third

value).

With regard to claim **3**, Cole in view of Siamwalla teaches: The procedure for

generating an address value as claimed in claim 1 (see discussion above). <u>Cole further</u>

<u>teaches</u>: wherein said calculating a third address value comprises concatenating the

characteristic value of a communication network with a specific value (i.e., the

generation of the proposed address "198.1.1.9" is equivalent to concatenating the

characteristic value "198.1.1" with the specific value "9"; column 5, lines 41-56), the

specific value being a maximum on a first calculation (i.e., among the proposed

addresses generated using "SEED -1", the specific value "9" is maximum), the specific

value being reduced by a unit each time that the third value is found to be assigned to

said another communication terminal (i.e., if a device on the network segment 20 has

already assigned the IP address "198.1.1.9", the router 24 generates another proposed

address by decrementing the seed again "SEED -2=>198.1.8").

With regard to claim **5**, Cole in view of Siamwalla teaches: The procedure for

generating an address value as claimed in claim 1 (see discussion above). <u>Cole further</u>

<u>teaches</u>: wherein the assigning step comprises a step for sending a communication

request to a communication terminal having the third address value (i.e., router 24

sends ARP request 28 out on the network to determine whether the proposed IP
address is assigned to another device; column 3, lines 44-64), and a step for awaiting
reception of a response, the reception of a response signifying that the third address
value is not available (i.e., if the ARP request is answered, the proposed IP address is
already assigned to another device on the network segment 20; column 3, lines 44-64).

With regard to claim **6**, Cole in view of Siamwalla teaches: The procedure for
generating an address value as claimed in claim 1 (see discussion above). <u>Cole further
teaches</u>: wherein the assigning step comprises a step for sending a communication
request to a communication terminal having the third address value (i.e., router 24
sends ARP request 28 out on the network to determine whether the proposed IP
address is assigned to another device; column 3, lines 44-64), and a step for receiving a
message sent by the network following said communication request indicating that the
third address value is not assigned to a communication terminal of the network, the step
for receiving such a message triggering the assigning of the third address value to the
communication terminal (i.e., if the ARP request 28 comes back unanswered, router 24
concludes that the proposed IP address is available, and assigns itself the IP address;
column 3, lines 55-64).

With regard to claim **7**, Cole teaches: An electronic device designed to be
connected to a communication network, comprising:

a means of bi-directional communication with said communication network (i.e., the line between 24 and 20 in Figure 1; column 2, lines 61-67);

a means of receiving all messages sent over the communication network (i.e., router 24 listens for all DNS requests; column 3, lines 31-43) in order to select a message interchanged between two communication terminals already configured (i.e., a DNS request unicast by the host 14 to a DNS server is identified by the router 24), said message interchanged comprising a first and a second address value (i.e., an IP packet header includes a broadcast DNS server address 40 and an IP source address 36; column 3, lines 21-30); and

a means for determining a characteristic value of the communication network (i.e., address generator module 46 in router 24 uses the source address 36 as a seed for generating proposed IP addresses; where a source address is "198.1.1.10", the fact that a proposed IP address is "198.1.1.9", implies determination of "198.1.1" as a characteristic value of the network; column 5, lines 42-56).

Cole does not teach, but Siamwalla does teach: a means for determining a characteristic value of the communication network which is the NOT exclusive OR between the first and the second address values (i.e., a NOT XOR operation is performed on network address values, in order to determine a subnet mask quickly; page 6 last ¶ – page 7 ¶ 2, esp. step 3k in algorithm). Based on Cole in view of Siamwalla, it would have been obvious to a person having ordinary skill in the art at the time the Applicant's invention was made, to combine the teaching of Siamwalla with the claimed subject matter as taught by Cole, in order to determine a subnet mask quickly.

Cole further teaches: , and for calculating a third address value containing the characteristic value of the network (i.e., address generator 46 generates a proposed IP address "SEED -1=>198.1.1.9"; column 5, lines 42-56), and for assigning the third address value to the device if a reaction following a communication request sent by the means of bi-directional communication to a device having the third address value indicates that the third address value is not assigned to any communication terminal of the network (i.e., if no device responds to an ARP request from router 24, router 24 assigns itself the proposed IP address; Figure 4; column 5, lines 26-32; column 3, lines 55-64).

With regard to claim **8**, Cole in view of Siamwalla teaches: the electronic device as claimed in claim 7 (see discussion above). Cole further teaches:

a means of sending a communication request to a said device having the third address value (i.e., router 24 sends ARP request 28 out on the network to determine whether the proposed IP address is assigned to another device; column 3, lines 44-64); and

a means of detecting a response to said communication request, the detecting of a response signifying that the third address value is not assigned to another device of the network (i.e., if the ARP request 28 of router 24 comes back to router 24 unanswered, router 24 concludes that the proposed IP address is available, and assigns itself the IP address; column 3, lines 55-64).

With regard to claim **9**, Cole in view of Siamwalla teaches: the electronic device as claimed in claim 7 (see discussion above). <u>Cole further teaches</u>: wherein the calculating means for determining and for calculating and for assigning, concatenates the characteristic value of the network previously determined with a specific value (i.e., the generation of the proposed address "198.1.1.9" by address generator module 46 is equivalent to concatenating the characteristic value "198.1.1" with the specific value "9"; column 5, lines 41-56), the specific value being at a maximum on a first calculation (i.e., among the proposed addresses generated by address generator module 46 using "SEED -1", the specific value "9" is maximum);;and the means for determining and for calculating and for assigning subtracts a unit from the specific value to calculate a new third address value when it turns out that the calculated address value is already assigned to a communication terminal (i.e., if a device on the network segment 20 has already assigned the IP address "198.1.1.9", the router 24 generates another proposed address by decrementing the seed again "SEED -2=>198.1.8").

9.   Claims **4 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Cole in view of Siamwalla, and further in view of **Feldmeier et al.** (US Pub. No. 20020032681) (or "Feldmeier").

With regard to claim **4**, Cole in view of Siamwalla teaches: The procedure for generating an address value as claimed in claim 3 (see discussion above). <u>Cole in view of Siamwalla does not teach, but Feldmeier does teach</u>: changing a value of the least significant bit of the characteristic value of the network, a new characteristic value being

reduced by a bit, said step changing being triggered when all the third address values calculated from a preceding characteristic value of the network are already assigned to a communication terminal (i.e., an address search technique uses a mask "11XXX", such that the characteristic value is "11"; if there is no match, the least significant 1 of the mask is replaced with a 0 to form the new mask "10XXX", *in order to accelerate address searching*; [0017], [0016], [0020]; 6 in Figure 4). <u>Based on Cole in view of Siamwalla and further in view of Feldmeier</u>, it would have been obvious to a person having ordinary skill in the art at the time the Applicant's invention was made, to combine the teaching of Feldmeier with the subject matter as taught by Cole in view of Siamwalla, in order to accelerate address searching.

With regard to claim **10**, Cole in view of Siamwalla teaches: The electronic device as claimed in claim 7 (see discussion above). <u>Cole in view of Siamwalla does not teach, but Feldmeier does teach</u>: a means for changing a value of the least significant bit of the characteristic value of the network, a new characteristic value being reduced by a bit, said means for changing being triggered when it turns out that third values calculated from a preceding characteristic value of the network are already assigned to a communication terminal (i.e., an address search technique uses a mask "11XXX", such that the characteristic value is "11"; if there is no match, the technique replaces the least significant 1 of the mask with a 0 to form the new mask "10XXX", *in order to accelerate address searching*; [0017], [0016], [0020]; 6 in Figure 4). <u>Based on Cole in view of Siamwalla and further in view of Feldmeier</u>, it would have been obvious to a

person having ordinary skill in the art at the time the Applicant's invention was made, to

combine the teaching of Feldmeier with the subject matter as taught by Cole in view of

Siamwalla, in order to accelerate address searching.

Conclusion

10.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

- Akgun et al. (US 6657991 B1) teaches that if an XOR operation on two

  network address values gives a result of zero, then they are on the same

  network (column 30 line 57 – column 31 line 14).

11.   Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

    A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Isom whose telephone number is (571)270-7203. The examiner can normally be reached on Monday through Friday, 9:30 a.m. to 6:00 p.m. ET.

        If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Hwang can be reached on (571)272-4036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. I./
Examiner, Art Unit 2447
12/2/2009

/Joon H. Hwang/
Supervisory Patent Examiner, Art Unit 2447